

WHAT IS CLAIMED IS:

1. A method for manufacturing an electroluminescent element comprising at least:

a hole injecting layer forming process of forming a hole injecting layer, which can be decomposed and removed by the action of a photocatalyst in irradiation with energy, on a first electrode layer formed side surface of a base material with the first electrode layer formed on the surface in a pattern;

a decomposition removing process of using a photocatalyst treatment layer substrate having at least a photocatalyst treatment layer containing a photocatalyst formed on a substrate, placing the base material with the hole injecting layer formed thereon and the photocatalyst treatment layer substrate with a gap of 200  $\mu\text{m}$  or less so that the photocatalyst treatment layer substrate and the hole injecting layer are facing to each other, and then, decomposing and removing the hole injecting layer in between the first electrode layers, in a pattern, on the base material with the hole injecting layer formed thereon by irradiating with energy from predetermined direction;

a light emitting layer forming process of forming the light emitting layer on the pattern formed hole injecting layer remaining on the base material; and

a second electrode layer forming process of forming the second electrode layer on the light emitting layer;

wherein a contact angle to a liquid of the surface of the hole injecting layer is smaller than the contact angle to a liquid of the surface bared by removing the hole injecting layer in

the decomposition removing process.

2. The method for manufacturing an electroluminescent element according to Claim 1, wherein a liquid repellent convex part is formed in between the first electrode layers.

3. The method for manufacturing an electroluminescent element according to Claim 2 wherein a width of the liquid repellent convex part is narrower than a clearance in between the first electrode layers.

4. The method for manufacturing an electroluminescent element according to Claim 1 wherein the hole injecting layer is a layer-by-layer self-assembled film consisting of a cationic polymer and an anionic polymer.

5. The method for manufacturing an electroluminescent element according to Claim 4 wherein an outermost film of the layer-by-layer self-assembled film is a film comprising a semiconductor polymer or an insulating polymer.

6. The method for manufacturing an electroluminescent element according to Claim 1 wherein the photocatalyst treatment layer substrate comprises the substrate and the photocatalyst treatment layer formed in a pattern on the substrate.

7. The method for manufacturing an electroluminescent element

according to Claim 1 wherein the photocatalyst treatment layer substrate comprises the substrate, photocatalyst treatment layer formed on the substrate, and a photocatalyst treatment layer side light shielding part formed in a pattern, and the irradiation with energy in the decomposition removing process is carried out from the photocatalyst treatment layer substrate.

8. The method for manufacturing an electroluminescent element according to Claim 7 wherein the photocatalyst treatment layer substrate is that the photocatalyst treatment layer side light shielding part is formed on the substrate in a pattern, and the photocatalyst treatment layer is further formed thereon.

9. The method for manufacturing an electroluminescent element according to Claim 8 wherein the photocatalyst treatment layer substrate is that the photocatalyst treatment layer is formed on the photocatalyst treatment layer side light shielding part, via a primer layer, formed in a pattern on the transparent substrate.

10. The method for manufacturing an electroluminescent element according to Claim 1 wherein the photocatalyst treatment layer is a layer comprising a photocatalyst.

11. The method for manufacturing an electroluminescent element according to Claim 10 wherein the photocatalyst treatment layer is a layer formed by forming a film of the photocatalyst on the

substrate by a vacuum film forming method.

12. The method for manufacturing an electroluminescent element according to Claim 1 wherein the photocatalyst treatment layer is a layer comprising the photocatalyst and a binder.

13. The method for manufacturing an electroluminescent element according to Claim 1 wherein the photocatalyst is one kind or two or more kinds of substances selected from titanium oxide ( $\text{TiO}_2$ ), zinc oxide ( $\text{ZnO}$ ), stannic oxide ( $\text{SnO}_2$ ), strontium titanate ( $\text{SrTiO}_3$ ), tungsten oxide ( $\text{WO}_3$ ), bismuth oxide ( $\text{Bi}_2\text{O}_3$ ) and iron oxide ( $\text{Fe}_2\text{O}_3$ ).

14. The method for manufacturing an electroluminescent element according to Claim 13 wherein the photocatalyst is titanium oxide ( $\text{TiO}_2$ ).

15. The method for manufacturing an electroluminescent element according to Claim 1 wherein in irradiation with energy in the decomposition removing process, the gap between the photocatalyst treatment layer and the hole injecting layer is in a range of 0.2  $\mu\text{m}$  to 10  $\mu\text{m}$ .

16. The method for manufacturing an electroluminescent element according to Claim 1 wherein the light emitting layer forming process is a process of coating a light emitting layer forming coating solution on the hole injecting layer by an ink jet method.

17. An electroluminescent element comprising at least a substrate, a first electrode layer formed in a pattern on the substrate surface, a hole injecting layer, formed on the first electrode layer, which can be decomposed and removed by the action of a photocatalyst in irradiation with energy, a light emitting layer formed on the hole injecting layer, and a second electrode layer formed on the light emitting layer.

18. The electroluminescent element according to Claim 17 wherein a liquid repellent convex part is formed in between the first electrode layers.

19. The electroluminescent element according to Claim 17 wherein the hole injecting layer is a layer-by-layer self-assembled film consisting of a cationic polymer and an anionic polymer.